FIG.1A

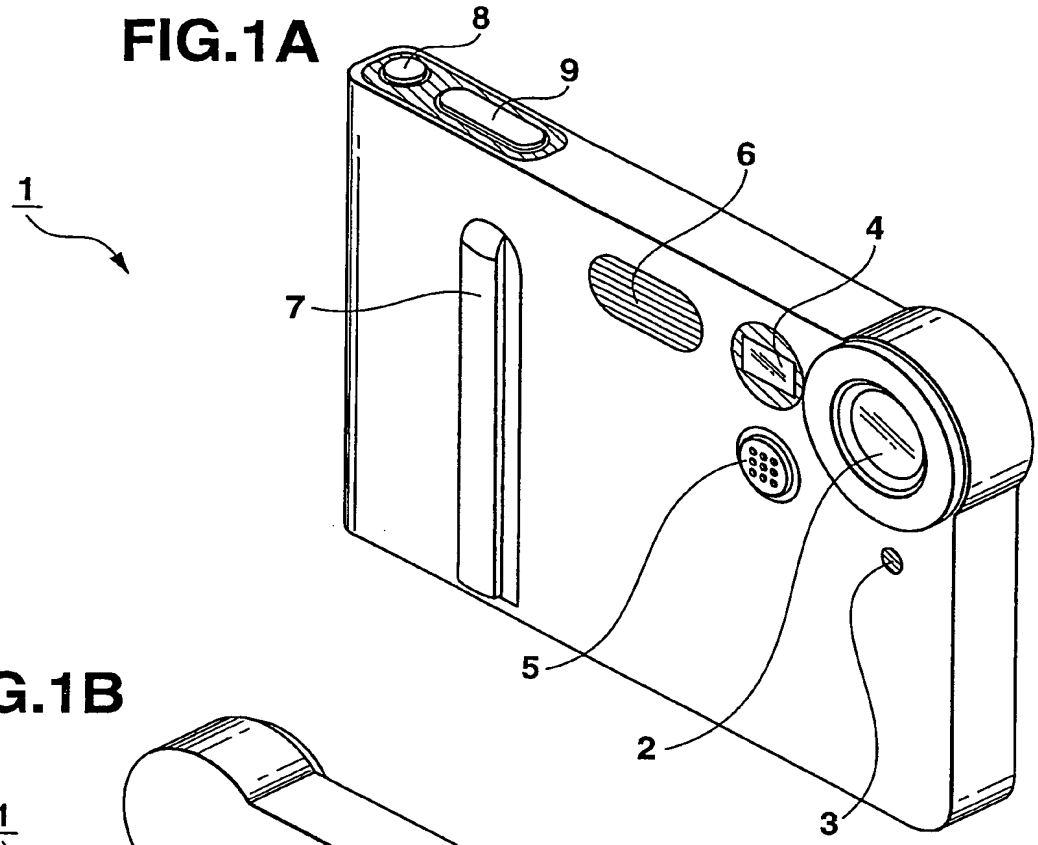


FIG.1B

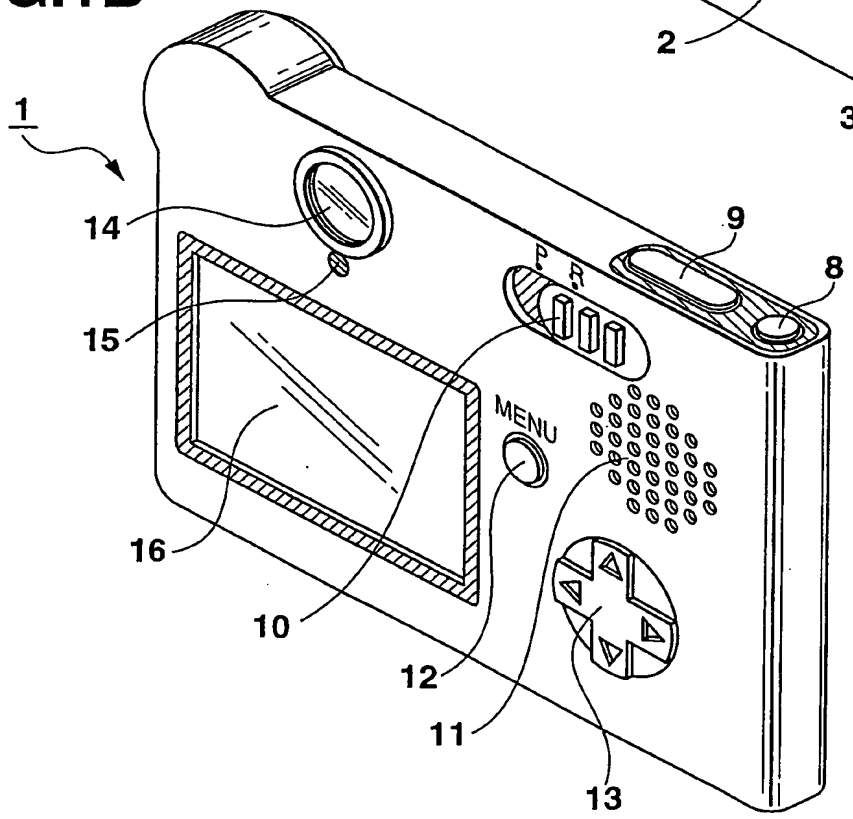


FIG.2

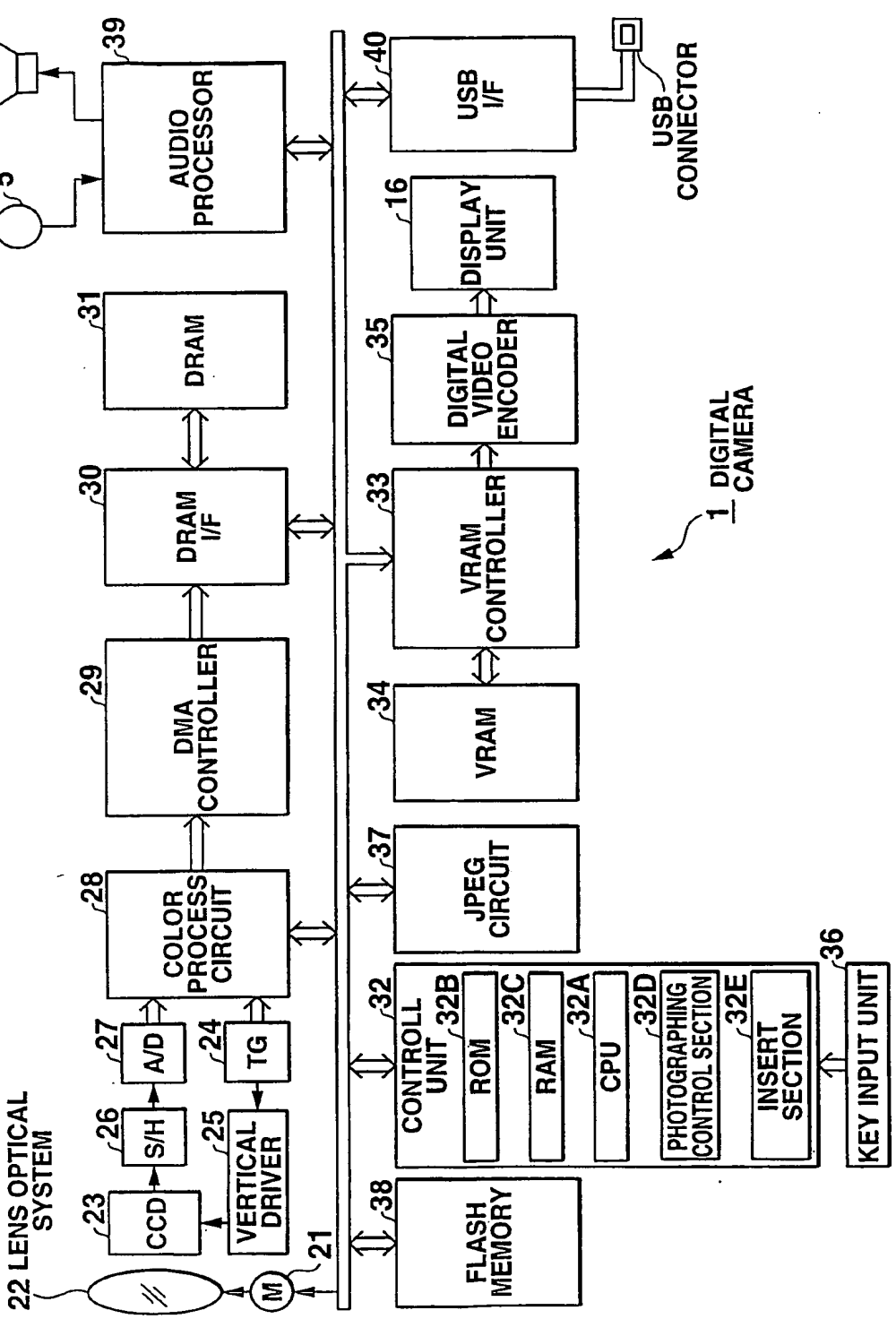
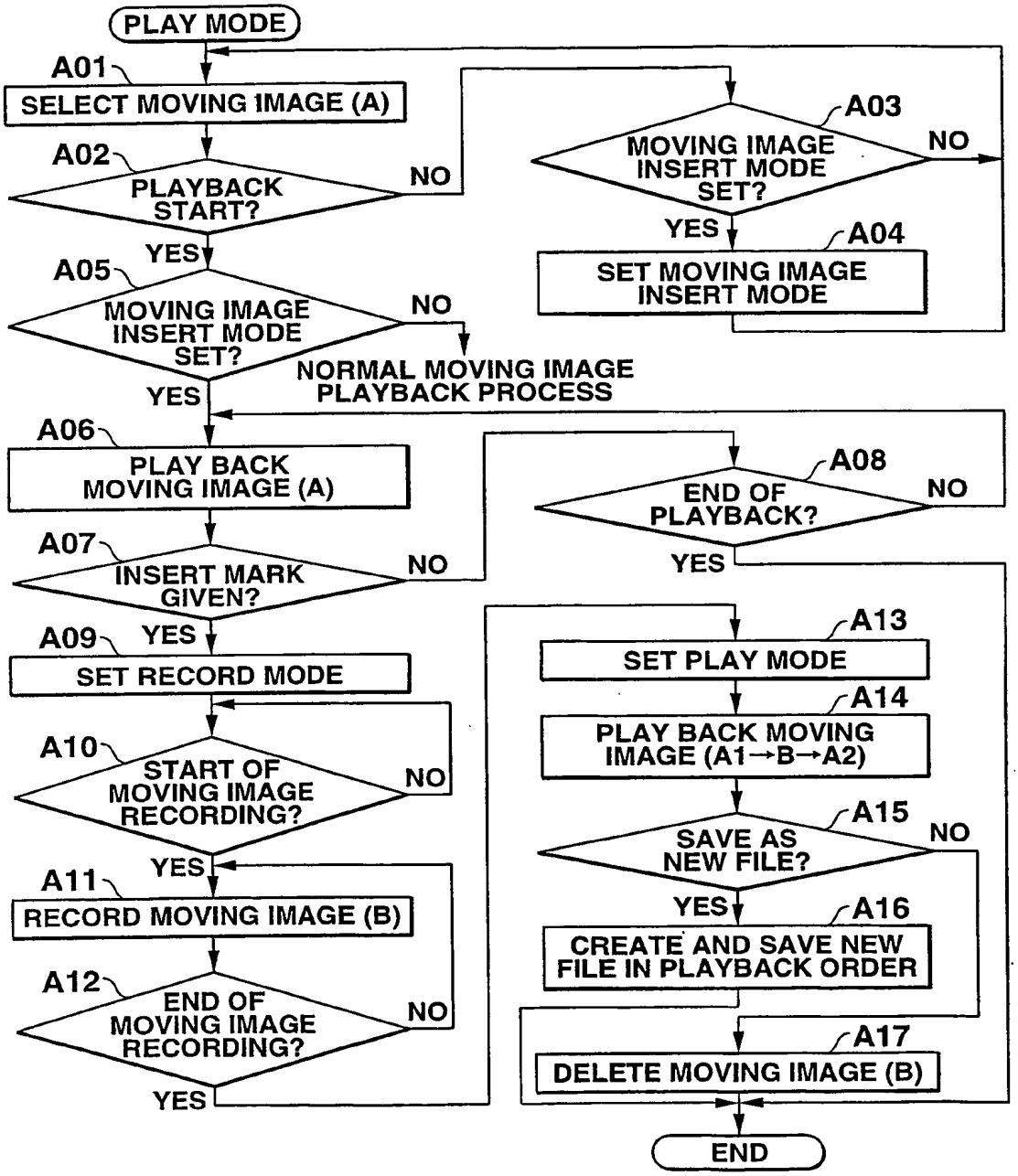
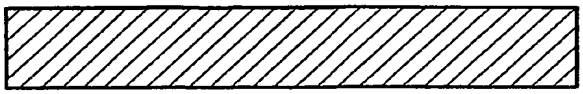

1 DIGITAL CAMERA
22 LENS OPTICAL SYSTEM
23 CCD
26 S/H
27 A/D
28 COLOR PROCESS CIRCUIT
29 DMA CONTROLLER
30 DRAM I/F
31 DRAM
25 VERTICAL DRIVER
24 TG
21
M
MIC 5
SP 11
39 AUDIO PROCESSOR
33 VRAM CONTROLLER
34 VRAM
35 DIGITAL VIDEO ENCODER
16 DISPLAY UNIT
40 USB I/F
USB CONNECTOR
37 JPEG CIRCUIT
32 CONTROLL UNIT
32B ROM
32C RAM
32A CPU
32D PHOTOGRAPHING CONTROL SECTION
32E INSERT SECTION
36 KEY INPUT UNIT
38 FLASH MEMORY

FIG.3


PLAY MODE
A01
SELECT MOVING IMAGE (A)
A02
PLAYBACK START?
NO
YES
A05
MOVING IMAGE INSERT MODE SET?
NO
NORMAL MOVING IMAGE PLAYBACK PROCESS
YES
A06
PLAY BACK MOVING IMAGE (A)
A07
INSERT MARK GIVEN?
NO
YES
A09
SET RECORD MODE
A10
START OF MOVING IMAGE RECORDING?
NO
YES
A11
RECORD MOVING IMAGE (B)
A12
END OF MOVING IMAGE RECORDING?
NO
YES
A03
MOVING IMAGE INSERT MODE SET?
NO
YES
A04
SET MOVING IMAGE INSERT MODE
A08
END OF PLAYBACK?
NO
YES
A13
SET PLAY MODE
A14
PLAY BACK MOVING IMAGE (A1→B→A2)
A15
SAVE AS NEW FILE?
NO
YES
A16
CREATE AND SAVE NEW FILE IN PLAYBACK ORDER
A17
DELETE MOVING IMAGE (B)
END

MOVING IMAGE A

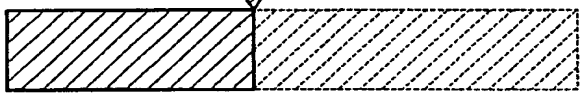
FIG.4A



IM

MOVING IMAGE A

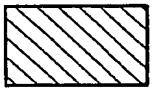
FIG.4B



(A1) (A2)

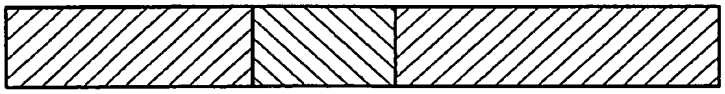
MOVING IMAGE B

FIG.4C



MOVING IMAGE A1+B+A2

FIG.4D



(A1) (B) (A2)

MOVING IMAGE A'

FIG.4E

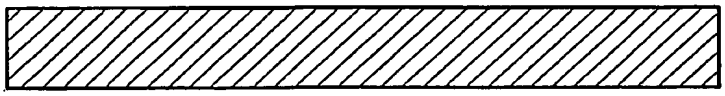
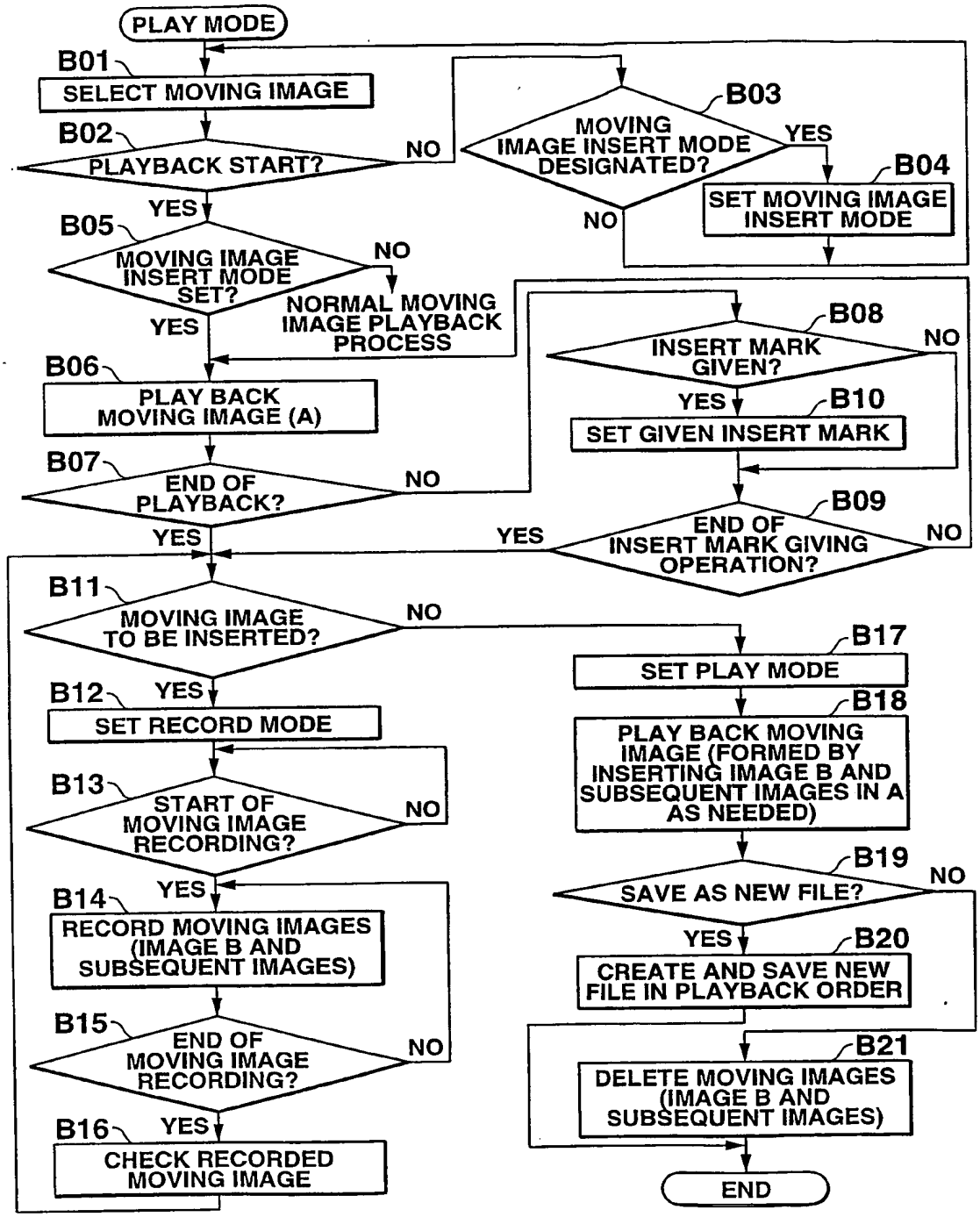
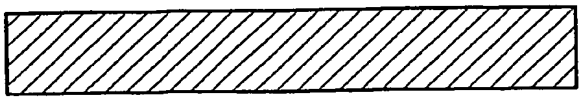


FIG.5


PLAY MODE
B01
SELECT MOVING IMAGE
B02
PLAYBACK START?
NO
YES
B03
MOVING IMAGE INSERT MODE DESIGNATED?
YES
NO
B04
SET MOVING IMAGE INSERT MODE
B05
MOVING IMAGE INSERT MODE SET?
NO
YES
NORMAL MOVING IMAGE PLAYBACK PROCESS
B06
PLAY BACK MOVING IMAGE (A)
B07
END OF PLAYBACK?
NO
YES
B08
INSERT MARK GIVEN?
NO
YES
B10
SET GIVEN INSERT MARK
B09
END OF INSERT MARK GIVING OPERATION?
YES
NO
B11
MOVING IMAGE TO BE INSERTED?
NO
YES
B12
SET RECORD MODE
B13
START OF MOVING IMAGE RECORDING?
NO
YES
B14
RECORD MOVING IMAGES (IMAGE B AND SUBSEQUENT IMAGES)
B15
END OF MOVING IMAGE RECORDING?
NO
YES
B16
CHECK RECORDED MOVING IMAGE
B17
SET PLAY MODE
B18
PLAY BACK MOVING IMAGE (FORMED BY INSERTING IMAGE B AND SUBSEQUENT IMAGES IN A AS NEEDED)
B19
SAVE AS NEW FILE?
NO
YES
B20
CREATE AND SAVE NEW FILE IN PLAYBACK ORDER
B21
DELETE MOVING IMAGES (IMAGE B AND SUBSEQUENT IMAGES)
END

MOVING IMAGE A

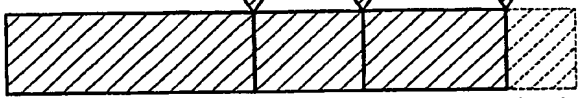
FIG.6A



IM1 IM2 IM3

MOVING IMAGE A

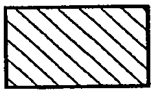
FIG.6B



(A1) (A2) (A3) (A4)

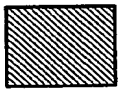
MOVING IMAGE B

FIG.6C



MOVING IMAGE C

FIG.6D

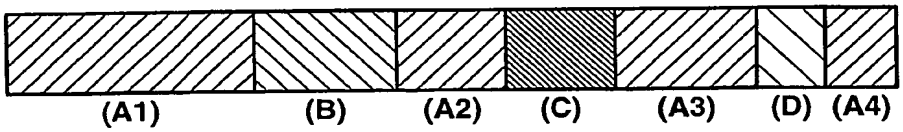


MOVING IMAGE D

FIG.6E

MOVING IMAGE A1+B+A2+C+A3+D+A4

FIG.6F



(A1) (B) (A2) (C) (A3) (D) (A4)

MOVING IMAGE A'

FIG.6G

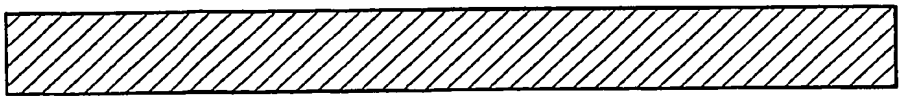


FIG.7

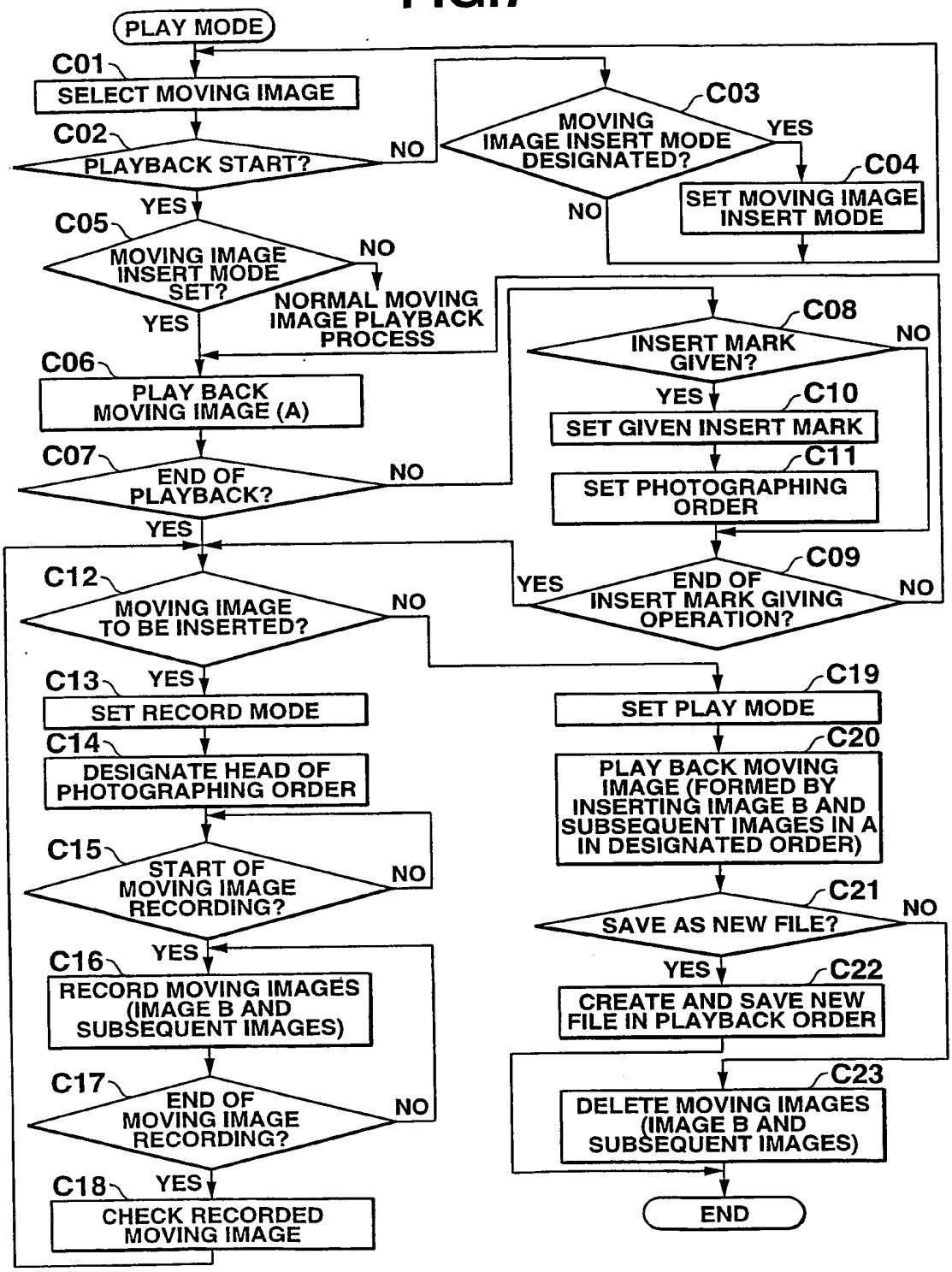

PLAY MODE
C01
SELECT MOVING IMAGE
C02
PLAYBACK START?
NO
YES
C03
MOVING IMAGE INSERT MODE DESIGNATED?
YES
NO
C04
SET MOVING IMAGE INSERT MODE
C05
MOVING IMAGE INSERT MODE SET?
NO
YES
NORMAL MOVING IMAGE PLAYBACK PROCESS
C06
PLAY BACK MOVING IMAGE (A)
C07
END OF PLAYBACK?
NO
YES
C08
INSERT MARK GIVEN?
NO
YES
C10
SET GIVEN INSERT MARK
C11
SET PHOTOGRAPHING ORDER
C09
END OF INSERT MARK GIVING OPERATION?
YES
NO
C12
MOVING IMAGE TO BE INSERTED?
NO
YES
C13
SET RECORD MODE
C14
DESIGNATE HEAD OF PHOTOGRAPHING ORDER
C15
START OF MOVING IMAGE RECORDING?
NO
YES
C16
RECORD MOVING IMAGES (IMAGE B AND SUBSEQUENT IMAGES)
C17
END OF MOVING IMAGE RECORDING?
NO
YES
C18
CHECK RECORDED MOVING IMAGE
C19
SET PLAY MODE
C20
PLAY BACK MOVING IMAGE (FORMED BY INSERTING IMAGE B AND SUBSEQUENT IMAGES IN A IN DESIGNATED ORDER)
C21
SAVE AS NEW FILE?
NO
YES
C22
CREATE AND SAVE NEW FILE IN PLAYBACK ORDER
C23
DELETE MOVING IMAGES (IMAGE B AND SUBSEQUENT IMAGES)
END

FIG.8A

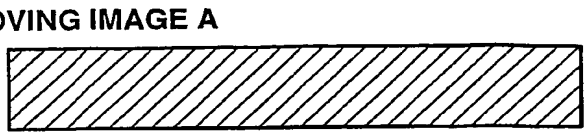


FIG.8B

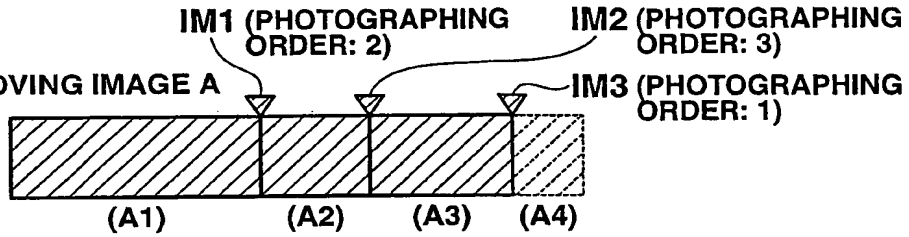


FIG.8C

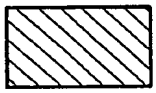


FIG.8D

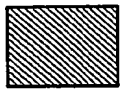


FIG.8E

FIG.8F

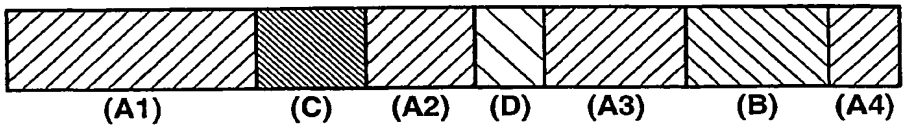


FIG.8G

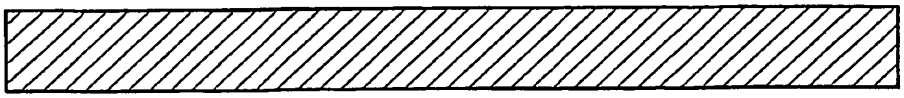


FIG.9

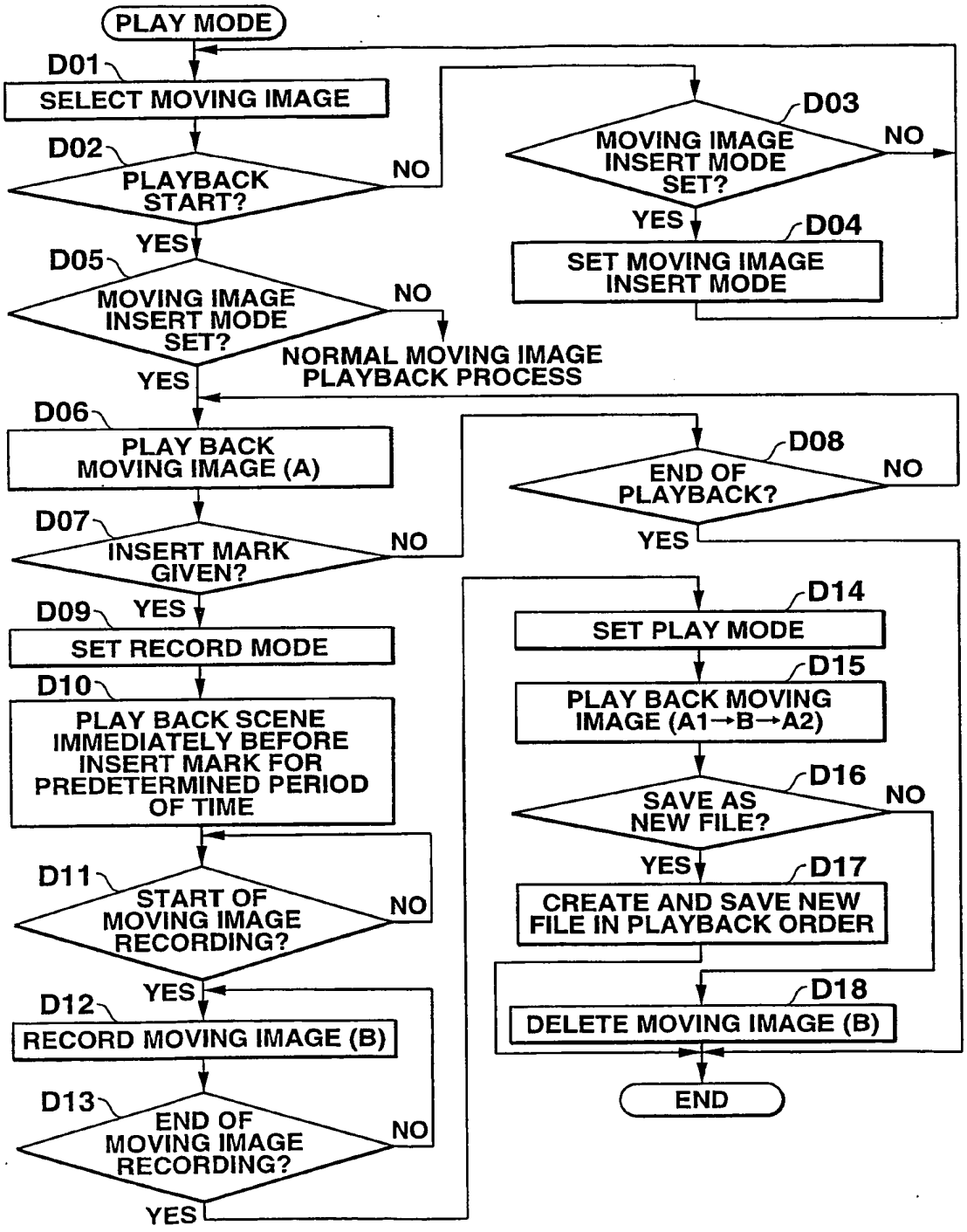

PLAY MODE
D01
SELECT MOVING IMAGE
D02
PLAYBACK START?
NO
YES
D03
MOVING IMAGE INSERT MODE SET?
NO
YES
D04
SET MOVING IMAGE INSERT MODE
D05
MOVING IMAGE INSERT MODE SET?
NO
NORMAL MOVING IMAGE PLAYBACK PROCESS
YES
D06
PLAY BACK MOVING IMAGE (A)
D07
INSERT MARK GIVEN?
NO
YES
D08
END OF PLAYBACK?
NO
YES
D09
SET RECORD MODE
D10
PLAY BACK SCENE IMMEDIATELY BEFORE INSERT MARK FOR PREDETERMINED PERIOD OF TIME
D11
START OF MOVING IMAGE RECORDING?
NO
YES
D12
RECORD MOVING IMAGE (B)
D13
END OF MOVING IMAGE RECORDING?
NO
YES
D14
SET PLAY MODE
D15
PLAY BACK MOVING IMAGE (A1→B→A2)
D16
SAVE AS NEW FILE?
NO
YES
D17
CREATE AND SAVE NEW FILE IN PLAYBACK ORDER
D18
DELETE MOVING IMAGE (B)
END

FIG.10

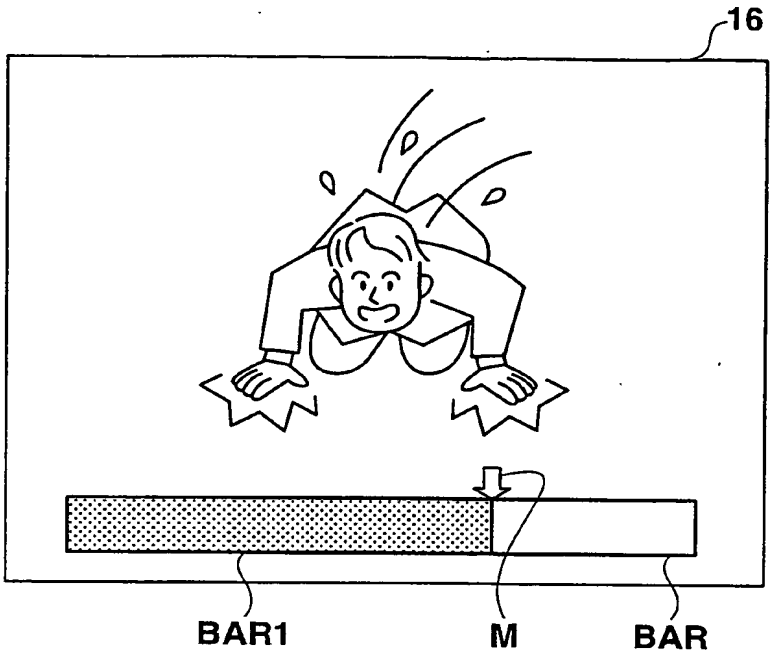
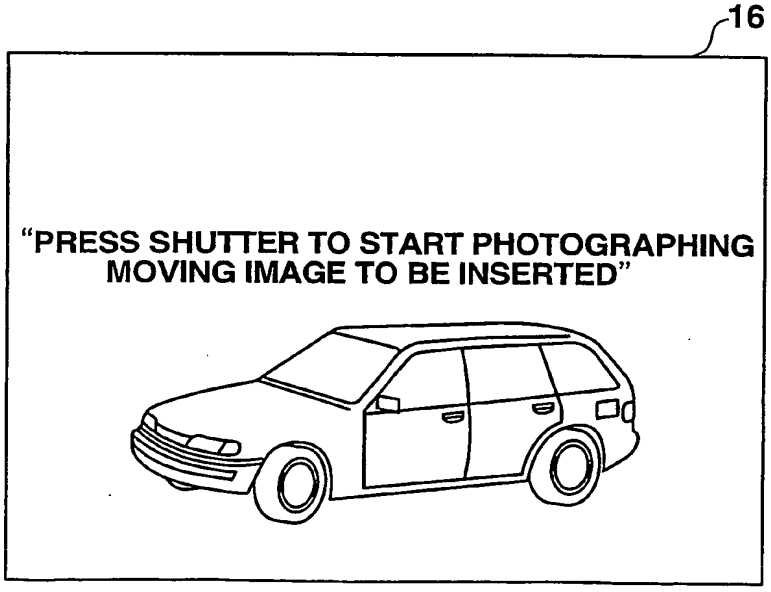

16
BAR1
M
BAR

FIG.11


16
"PRESS SHUTTER TO START PHOTOGRAPHING MOVING IMAGE TO BE INSERTED"